IN THE CLAIMS

Please amend the claims as follows:

Claims 1-43 (Cancelled).

44. (Currently Amended) ~~The use~~ A method of lowering the surface tension or the interface tension of water comprising adding ~~of~~ a polymer comprising water-soluble units and units with an LCST, the units with an LCST having in water a demixing temperature of from 5 to 40 °C at a concentration of 1% by mass in water, to water in an amount sufficient to lower the surface tension or the interface tension of water.

45. (Currently Amended) The ~~use~~ method as claimed in claim 44, in which the lowering of the surface tension or of the interface tension of water is ~~of~~ at least 15 mN/m for a concentration of polymer in water of 0.1% by mass in the temperature range from 5 to 80 °C.

46. (Currently Amended) The ~~use~~ method as claimed in claim 44, in which the lowering of the surface tension or of the interface tension of water is of at least 20 mN/m for a concentration of polymer in water of 0.1% by mass when the temperature is higher than the demixing temperature of the units with an LCST at this concentration.

47. (Currently Amended) ~~The use of~~ A method of manufacturing a foam, comprising mixing a polymer comprising water-soluble units and units with an LCST, the units with an LCST having in water a demixing temperature of from 5 to 40 °C at a concentration of 1% by mass in water with water; and generating a foam~~, to manufacture a foam~~.

48. (Currently Amended) The ~~use of a polymer comprising water-soluble units and units with an LCST, the units with an LCST having in water a demixing temperature of from 5 to 40 °C at a concentration of 1% by mass in water, to manufacture a foam, also~~ The method as claimed in Claim 47, further comprising mixing a foaming surfactant at a concentration of less than or equal to 5% by mass.

49. (Currently Amended) ~~The use of~~ A method of manufacturing an emulsion, comprising mixing a polymer comprising water-soluble units and units with an LCST, the units with an LCST having in water a demixing temperature of from 5 to 40 C at a concentration of 1% by mass in water, with water and at least one oil; and generating the emulsion, wherein the emulsion is ~~to manufacture an emulsion~~ free of additional emulsifying surfactant or ~~containing~~ comprises an additional emulsifying surfactant at a concentration of less than or equal to 1% by mass.

Claims 50-103 (Cancelled).

104. (New) The method as claimed in Claim 44, wherein the polymer is in the form of a block polymer comprising water-soluble units alternating with units with an LCST, or in the form of a grafted polymer whose backbone is formed from water-soluble units and which bears grafts consisting of units with an LCST or a grafted polymer whose backbone is formed from units with an LCST and which bears grafts consisting of water-soluble units.

105. (New) The method as claimed in Claim 104, wherein the polymer is partially crosslinked.

106. (New) The method as claimed in Claim 47, wherein the polymer is in the form of a block polymer comprising water-soluble units alternating with units with an LCST, or in the form of a grafted polymer whose backbone is formed from water-soluble units and which bears grafts consisting of units with an LCST or a grafted polymer whose backbone is formed from units with an LCST and which bears grafts consisting of water-soluble units.

107. (New) The method as claimed in Claim 106, wherein the polymer is partially crosslinked.

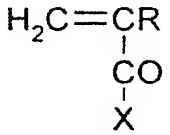
108. (New) The method as claimed in Claim 49, wherein the polymer is in the form of a block polymer comprising water-soluble units alternating with units with an LCST, or in the form of a grafted polymer whose backbone is formed from water-soluble units and which bears grafts consisting of units with an LCST or a grafted polymer whose backbone is formed from units with an LCST and which bears grafts consisting of water-soluble units.

109. (New) The method as claimed in Claim 108, wherein the polymer is partially crosslinked.

110. (New) The method as claimed in Claim 44, wherein the water-soluble units are obtained by free-radical polymerization of at least one monomer selected from the group consisting of:

(meth)acrylic acid;

vinyl monomers of formula (I) below:



(I)

wherein:

R is from H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and

X is:

OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a secondary amine; a tertiary amine; or a quaternary amine group of the formula

$N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of R' + R_1 + R_2 + R_3 does not exceed 7; and

$-NH_2$, $-NHR_4$ and $-NR_4R_5$ groups in which R_4 and R_5 are, independently of each other, linear or branched, saturated or unsaturated hydrocarbon radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon atoms in R_4 + R_5 does not exceed 7, the said R_4 and R_5 optionally being substituted with a halogen atom (iodine, bromine, chlorine or fluorine); a hydroxyl (-OH); sulphonic ($-SO_3^-$), sulphate ($-SO_4^-$); phosphate ($-PO_4H_2$); primary amine ($-NH_2$); secondary amine ($-NHR_1$), tertiary amine ($-NR_1R_2$) and/or quaternary amine ($-N^+R_1R_2R_3$) group with R_1, R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of R_4 + R_5 + R_1 + R_2 + R_3 does not exceed 7;

maleic anhydride;

itaconic acid;

vinyl alcohol of formula CH_2=CHOH;

vinyl acetate of formula CH_2=CH-$OCOCH_3$;

N-vinyllactams such as N-vinylpyrrolidone, N-vinylcaprolactam and N-butyrolactam;

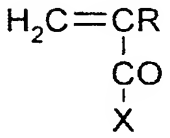
vinyl ethers of formula CH_2=$CHOR_6$ in which R_6 is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms;

water-soluble styrene derivatives, especially styrene sulphonate; dimethyldiallylammonium chloride; and vinylacetamide.

111. (New) The method as claimed in Claim 47, wherein the water-soluble units are obtained by free-radical polymerization of at least one monomer selected from the group consisting of:

(meth)acrylic acid;

vinyl monomers of formula (I) below:



(I)

wherein:

R is from H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and

X is:

OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a secondary amine; a tertiary amine; or a quaternary amine group of the formula $N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R' + R_1 + R_2 + R_3$ does not exceed 7; and

$-NH_2$, $-NHR_4$ and $-NR_4R_5$ groups in which R_4 and R_5 are, independently of each other, linear or branched, saturated or unsaturated

hydrocarbon radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon atoms in $R_4 + R_5$ does not exceed 7, the said R_4 and R_5 optionally being substituted with a halogen atom (iodine, bromine, chlorine or fluorine); a hydroxyl (-OH); sulphonic ($-SO_3^-$), sulphate ($-SO_4^-$); phosphate ($-PO_4H_2$); primary amine ($-NH_2$); secondary amine ($-NHR_1$), tertiary amine ($-NR_1R_2$) and/or quaternary amine ($-N^+R_1R_2R_3$) group with R_1, R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R_4 + R_5 + R_1 + R_2 + R_3$ does not exceed 7;

maleic anhydride;

itaconic acid;

vinyl alcohol of formula $CH_2=CHOH$;

vinyl acetate of formula $CH_2=CH-OCOCH_3$;

N-vinyllactams such as N-vinylpyrrolidone, N-vinylcaprolactam and N-butyrolactam;

vinyl ethers of formula $CH_2=CHOR_6$ in which R_6 is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms;

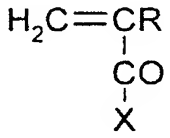
water-soluble styrene derivatives, especially styrene sulphonate;

dimethyldiallylammonium chloride; and vinylacetamide.

112. (New) The method as claimed in Claim 49, wherein the water-soluble units are obtained by free-radical polymerization of at least one monomer selected from the group consisting of:

(meth)acrylic acid;

vinyl monomers of formula (I) below:



(I)

wherein:

R is from H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and

X is:

OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a secondary amine; a tertiary amine; or a quaternary amine group of the formula $N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of R' + R_1 + R_2 + R_3 does not exceed 7; and

$-NH_2$, $-NHR_4$ and $-NR_4R_5$ groups in which R_4 and R_5 are, independently of each other, linear or branched, saturated or unsaturated hydrocarbon radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon atoms in R_4 + R_5 does not exceed 7, the said R_4 and R_5 optionally being substituted with a halogen atom (iodine, bromine, chlorine or fluorine); a hydroxyl (-OH); sulphonic ($-SO_3^-$), sulphate ($-SO_4^-$); phosphate ($-PO_4H_2$); primary amine ($-NH_2$); secondary amine ($-NHR_1$),

tertiary amine ($-NR_1R_2$) and/or quaternary amine ($-N^+R_1R_2R_3$) group with R_1, R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R_4 + R_5 + R_1 + R_2 + R_3$ does not exceed 7;

maleic anhydride;

itaconic acid;

vinyl alcohol of formula $CH_2=CHOH$;

vinyl acetate of formula $CH_2=CH-OCOCH_3$;

N-vinyllactams such as N-vinylpyrrolidone, N-vinylcaprolactam and N-butyrolactam;

vinyl ethers of formula $CH_2=CHOR_6$ in which R_6 is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms;

water-soluble styrene derivatives, especially styrene sulphonate;

dimethyldiallylammonium chloride; and vinylacetamide.

113. (New) The method as claimed in Clam 44, wherein the water-soluble units comprises one or more members selected from the group consisting of a water-soluble polyurethane, xanthan gum, alginate; alginate derivative; cellulose derivatives; galactomannan; galactomannan derivatives thereof; and polyethyleneimine.

114. (New) (New) The method as claimed in Clam 47, wherein the water-soluble units comprises one or more members selected from the group consisting of a water-soluble polyurethane, xanthan gum, alginate; alginate derivative; cellulose

derivatives; galactomannan; galactomannan derivatives thereof; and polyethyleneimine.

115. (New) The method as claimed in Clam 49, wherein the water-soluble units comprises one or more members selected from the group consisting of a water-soluble polyurethane, xanthan gum, alginate; alginate derivative; cellulose derivatives; galactomannan; galactomannan derivatives thereof; and polyethyleneimine.

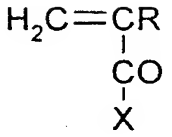
116. (New) The method as claimed in Claim 44, wherein the water-soluble units have a molar mass ranging from 1000 g/mol to 5 000 000 g/mol when they constitute the water-soluble backbone of a grafted polymer, or a molar mass ranging from 500 g/mol to 100 000 g/mol when they constitute one block of a multiblock polymer or when they constitute the grafts of a grafted polymer.

117. (New) The method as claimed in Claim 47, wherein the water-soluble units have a molar mass ranging from 1000 g/mol to 5 000 000 g/mol when they constitute the water-soluble backbone of a grafted polymer, or a molar mass ranging from 500 g/mol to 100 000 g/mol when they constitute one block of a multiblock polymer or when they constitute the grafts of a grafted polymer.

118. (New) The method as claimed in Claim 49, wherein the water-soluble units have a molar mass ranging from 1000 g/mol to 5 000 000 g/mol when they constitute the water-soluble backbone of a grafted polymer, or a molar mass ranging from 500 g/mol to 100 000 g/mol when they constitute one block of a multiblock polymer or when they constitute the grafts of a grafted polymer.

119. (New) The method as claimed in Claim 44, wherein the units with an LCST comprises one or more of the following polymers:

polyethers; polyvinyl methyl ethers; polymeric N-substituted acrylamide derivatives; and a vinyl monomer corresponding to formula (I):



(I)

wherein:

R is from H, -CH_3, -C_2H_5 or -C_3H_7, and

X is:

OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a secondary amine; a tertiary amine; or a quaternary amine group of the formula $N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of R' + R_1 + R_2 + R_3 does not exceed 7; and

-NH_2, -NHR_4 and -NR_4R_5 groups in which R_4 and R_5 are, independently of each other, linear or branched, saturated or unsaturated hydrocarbon radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon atoms in R_4 + R_5 does not exceed 7, the said R_4 and R_5 optionally being substituted with a halogen atom (iodine, bromine, chlorine or fluorine); a hydroxyl (-OH); sulphonic (-SO_3^-), sulphate (-SO_4^-); phosphate (-PO_4H_2); primary amine (-NH_2); secondary amine (-NHR_1), tertiary amine (-NR_1R_2) and/or quaternary amine (-$N^+R_1R_2R_3$) group with

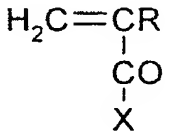
R_1, R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R_4 + R_5 + R_1 + R_2 + R_3$ does not exceed 7;

a monomer selected from the group consisting of maleic anhydride, itaconic acid, vinylpyrrolidone, styrene and its derivatives, dimethyldiallylammonium chloride, vinylacetamide, vinyl ethers and vinyl acetate derivatives; or

polyvinylcaprolactam; copolymers of vinylcaprolactam and a vinyl monomer corresponding to formula (I).

120. (New) The method as claimed in Claim 47, wherein the units with an LCST comprises one or more of the following polymers:

polyethers; polyvinyl methyl ethers; polymeric N-substituted acrylamide derivatives; and a vinyl monomer corresponding to formula (I):



(I)

wherein:

R is from H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and

X is:

OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a

secondary amine; a tertiary amine; or a quaternary amine group of the formula $N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R' + R_1 + R_2 + R_3$ does not exceed 7; and

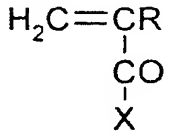
$-NH_2$, $-NHR_4$ and $-NR_4R_5$ groups in which R_4 and R_5 are, independently of each other, linear or branched, saturated or unsaturated hydrocarbon radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon atoms in $R_4 + R_5$ does not exceed 7, the said R_4 and R_5 optionally being substituted with a halogen atom (iodine, bromine, chlorine or fluorine); a hydroxyl (-OH); sulphonic ($-SO_3^-$), sulphate ($-SO_4^-$); phosphate ($-PO_4H_2$); primary amine ($-NH_2$); secondary amine ($-NHR_1$), tertiary amine ($-NR_1R_2$) and/or quaternary amine ($-N^+R_1R_2R_3$) group with R_1, R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R_4 + R_5 + R_1 + R_2 + R_3$ does not exceed 7;

a monomer selected from the group consisting of maleic anhydride, itaconic acid, vinylpyrrolidone, styrene and its derivatives, dimethyldiallylammonium chloride, vinylacetamide, vinyl ethers and vinyl acetate derivatives; or

polyvinylcaprolactam; copolymers of vinylcaprolactam and a vinyl monomer corresponding to formula (I).

121. (New) The method as claimed in Claim 49, wherein the units with an LCST comprises one or more of the following polymers:

polyethers; polyvinyl methyl ethers; polymeric N-substituted acrylamide derivatives; and a vinyl monomer corresponding to formula (I):



(I)

wherein:

R is from H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and

X is:

OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a secondary amine; a tertiary amine; or a quaternary amine group of the formula $N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of R' + R_1 + R_2 + R_3 does not exceed 7; and

$-NH_2$, $-NHR_4$ and $-NR_4R_5$ groups in which R_4 and R_5 are, independently of each other, linear or branched, saturated or unsaturated hydrocarbon radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon atoms in R_4 + R_5 does not exceed 7, the said R_4 and R_5 optionally being substituted with a halogen atom (iodine, bromine, chlorine or fluorine); a hydroxyl (-OH); sulphonic ($-SO_3^-$), sulphate ($-SO_4^-$);

phosphate ($-PO_4H_2$); primary amine ($-NH_2$); secondary amine ($-NHR_1$), tertiary amine ($-NR_1R_2$) and/or quaternary amine ($-N^+R_1R_2R_3$) group with R_1, R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R_4 + R_5 + R_1 + R_2 + R_3$ does not exceed 7;

a monomer selected from the group consisting of maleic anhydride, itaconic acid, vinylpyrrolidone, styrene and its derivatives, dimethyldiallylammonium chloride, vinylacetamide, vinyl ethers and vinyl acetate derivatives; or polyvinylcaprolactam; copolymers of vinylcaprolactam and a vinyl monomer corresponding to formula (I).

122. (New) The method as claimed in Claim 44, wherein the units with an LCST consist of polypropylene oxides of formula $(PPO)_n$ with n being an integer from 10 to 50, or random copolymers of ethylene oxide (EO) and of propylene oxide (PO), represented by the formula:

$$(EO)_m(PO)_n$$

in which m is an integer of from 1 to 40 and n is an integer ranging from 10 to 60.

123. (New) The method as claimed in Claim 47, wherein the units with an LCST consist of polypropylene oxides of formula $(PPO)_n$ with n being an integer from 10 to 50, or random copolymers of ethylene oxide (EO) and of propylene oxide (PO), represented by the formula:

$$(EO)_m(PO)_n$$

in which m is an integer of from 1 to 40 and n is an integer ranging from 10 to 60.

124. (New) The method as claimed in Claim 44, wherein the units with an LCST consist of polypropylene oxides of formula $(PPO)_n$ with n being an integer from 10 to

50, or random copolymers of ethylene oxide (EO) and of propylene oxide (PO), represented by the formula:

$$(EO)_m(PO)_n$$

in which m is an integer of from 1 to 40 and n is an integer ranging from 10 to 60.

125. (New) The method as claimed in Claim 44, wherein the molar mass of the units with an LCST is from 500 to 5300 g/mol.

126. (New) The method as claimed in Claim 125, wherein the molar mass of the units with an LCST is from 1500 to 4000 g/mol.

127. (New) The method as claimed in Claim 47, wherein the molar mass of the units with an LCST is from 500 to 5300 g/mol.

128. (New) The method as claimed in Claim 127, wherein the molar mass of the units with an LCST is from 1500 to 4000 g/mol.

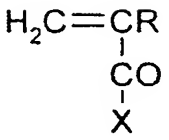
129 (New) (New) The method as claimed in Claim 49, wherein the molar mass of the units with an LCST is from 500 to 5300 g/mol.

130. (New) The method as claimed in Claim 129, wherein the molar mass of the units with an LCST is from 1500 to 4000 g/mol.

131. (New) The method as claimed in Claim 44, wherein the units with an LCST comprise

a polyvinylcaprolactam;

a copolymer of vinylcaprolactam and of a vinyl monomer corresponding to formula (I):



(I)

wherein:

R is from H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and

X is:

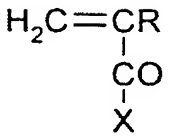
OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a secondary amine; a tertiary amine; or a quaternary amine group of the formula $N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R' + R_1 + R_2 + R_3$ does not exceed 7; or

a monomer selected from the group consisting of maleic anhydride, itaconic acid, vinylpyrrolidone, styrene; styrene derivatives, dimethyldiallylammonium chloride, vinylacetamide, vinyl alcohol, vinyl acetate, vinyl ethers, and vinyl acetate derivatives.

132. (New) The method as claimed in Claim 49, wherein the units with an LCST comprise

a polyvinylcaprolactam;

a copolymer of vinylcaprolactam and of a vinyl monomer corresponding to formula (I):



(I)

wherein:

R is from H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and

X is:

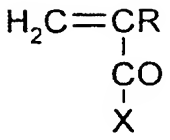
OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a secondary amine; a tertiary amine; or a quaternary amine group of the formula $N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R' + R_1 + R_2 + R_3$ does not exceed 7; or

a monomer selected from the group consisting of maleic anhydride, itaconic acid, vinylpyrrolidone, styrene; styrene derivatives, dimethyldiallylammonium chloride, vinylacetamide, vinyl alcohol, vinyl acetate, vinyl ethers, and vinyl acetate derivatives.

133. (New) The method as claimed in Claim 49, wherein the units with an LCST comprise

a polyvinylcaprolactam;

a copolymer of vinylcaprolactam and of a vinyl monomer corresponding to formula (I):



(I)

wherein:

R is from H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and

X is:

OR' alkyl oxides wherein R' is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom; a sulphonic group, a sulphate group, a phosphate group; a hydroxyl group; a primary amine; a secondary amine; a tertiary amine; or a quaternary amine group of the formula $N^+R_1R_2R_3$ wherein R_1, R_2 and R_3 are, independently, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R' + R_1 + R_2 + R_3$ does not exceed 7; or

a monomer selected from the group consisting of maleic anhydride, itaconic acid, vinylpyrrolidone, styrene; styrene derivatives, dimethyldiallylammonium chloride, vinylacetamide, vinyl alcohol, vinyl acetate, vinyl ethers, and vinyl acetate derivatives.

134. (New) The method as claimed in Claim 44, wherein the proportion by mass of the units with an LCST is from 5 to 70% relative to the polymer.

135. (New) The method as claimed in Claim 134, wherein the proportion by mass of the units with an LCST is from 20 to 65% relative to the polymer.

136. (New) The method as claimed in Claim 134, wherein the proportion by mass of the units with an LCST is from 30 to 60% relative to the polymer.

137. (New) The method as claimed in Claim 47, wherein the proportion by mass of the units with an LCST is from 5 to 70% relative to the polymer.

138. (New) The method as claimed in Claim 137, wherein the proportion by mass of the units with an LCST is from 20 to 65% relative to the polymer.

139. (New) The method as claimed in Claim 137, wherein the proportion by mass of the units with an LCST is from 30 to 60% relative to the polymer.

140. (New) The method as claimed in Claim 49, wherein the proportion by mass of the units with an LCST is from 5 to 70% relative to the polymer.

141. (New) The method as claimed in Claim 140, wherein the proportion by mass of the units with an LCST is from 20 to 65% relative to the polymer.

142. (New) The method as claimed in Claim 140, wherein the proportion by mass of the units with an LCST is from 30 to 60% relative to the polymer.

143. (New) The method as claimed in Claim 44, wherein the concentration by mass of the polymer in the aqueous phase is less than or equal to 5%.

144. (New) The method as claimed in Claim 143, wherein the concentration by mass of the polymer in the aqueous phase is from 0.01% to 5%.

145. (New) The method as claimed in Claim 47, wherein the concentration by mass of the polymer in the aqueous phase is less than or equal to 5%.

146. (New) The method as claimed in Claim 145, wherein the concentration by mass of the polymer in the aqueous phase is from 0.01% to 5%.

147. (New) The method as claimed in Claim 49, wherein the concentration by mass of the polymer in the aqueous phase is less than or equal to 5%.

148. (New) The method as claimed in Claim 147, wherein the concentration by mass of the polymer in the aqueous phase is from 0.01% to 5%.